

PATENT COOPERATION TREATY

PCT

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CODE	DATE	NTD

INTERNATIONAL SEARCH REPORT

ANKOM 22 JUN 2004 (PCT Article 18 and Rules 43 and 44) GIPS

Applicant's or agent's file reference	FOR FURTHER ACTION			see Form PCT/ISA/220 as well as, where applicable, Item 5 below.
101009-1 WO	DATA	International filing date (day/month/year)	(Earliest) Priority Date (day/month/year)	
International application NO. 101009-1	FINAL	23/03/2004	29/03/2003	
PCT/GB2004/001915				
Applicant				
ASTRAZENECA AB				

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 6 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☒ **Certain claims were found unsearchable** (See Box II).

3. ☐ **Unity of invention is lacking** (see Box III).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regards to the **drawings**,

- a. the figure of the **drawings** to be published with the abstract is Figure No. 1

☒ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

- b. ☐ none of the figures is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB2004/001272

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C12Q1/18 C12Q1/48 C12Q1/32

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C12Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, BIOSIS, WPI Data, PAJ, FSTA, EMBASE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>KOUL A ET AL: "SERINE/THREONINE PROTEIN KINASES PKNF AND PKNG OF MYCOBACTERIUM TUBERCULOSIS: CHARACTERIZATION AND LOCALIZATION"</p> <p>MICROBIOLOGY, SOCIETY FOR GENERAL MICROBIOLOGY, READING, GB, vol. 147, no. 8, August 2001 (2001-08), pages 2307-2314, XP001162730</p> <p>ISSN: 1350-0872</p> <p>the whole document, in particular p.2313, left-handed column, 3rd paragr.</p> <p style="text-align: center;">--- -/-</p>	4-12

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *Z* document member of the same patent family

Date of the actual completion of the international search

4 June 2004

Date of mailing of the international search report

22/06/2004

Name and mailing address of the ISA

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Bassias, I

INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB2004/001272

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>AV-GAY Y ET AL: "The eukaryotic-like Ser/thr protein kinases of <i>Mycobacterium tuberculosis</i>"</p> <p>TRENDS IN MICROBIOLOGY, ELSEVIER SCIENCE LTD., KIDLINGTON, GB, vol. 8, no. 5, May 2000 (2000-05), pages 238-244, XP002191211 ISSN: 0966-842X the whole document, in particular p.241</p>	4-12
A	<p>MCKINNEY JOHN D ET AL: "Persistence of <i>Mycobacterium tuberculosis</i> in macrophages and mice requires the glyoxylate shunt enzyme isocitrate lyase"</p> <p>NATURE (LONDON), vol. 406, no. 6797, 17 August 2000 (2000-08-17), pages 735-738, XP002283198 ISSN: 0028-0836</p>	
A	<p>BENTRUP KERSTIN HONER ZU ET AL: "Characterization of activity and expression of isocitrate lyase in <i>Mycobacterium avium</i> and <i>Mycobacterium tuberculosis</i>"</p> <p>JOURNAL OF BACTERIOLOGY, WASHINGTON, DC, US, vol. 181, no. 23, December 1999 (1999-12), pages 7161-7167, XP002206161 ISSN: 0021-9193</p>	
P,X	<p>WO 03/074728 A (UNIV BRITISH COLUMBIA ;AV-GAY YOSSEF (CA); COWLEY SIOBHAN (CA); DR) 12 September 2003 (2003-09-12) the whole document, in particular p.3, 1.1-22, Example 6 and claims</p>	4-12
P,X	<p>WO 03/084947 A (AXXIMA PHARMACEUTICALS AG ;BACHER GERALD (DE); KOUL ANIL (DE); MIS) 16 October 2003 (2003-10-16) the whole document, in particular p.31, 35-38 and claims, in particular claims 17,18,25,26,29-31,39,45,50</p>	4-12

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box II.2

Claims Nos.: 1-3

Present claims 1-3 are so broad and unclear that a meaningful search over the whole scope of the claims is not possible. The method of claim 1 is not limited to a specific microorganism but refers to ANY microorganism. Furthermore, not a specific metabolic pathway has to be inhibited but ANY kind of metabolic pathway essential for viability. The expression "metabolic pathway ESSENTIAL FOR VIABILITY" is per se not clear in the sense of Article 6 PCT. When a pathway is essential depends very much on the growing conditions of the microorganism. Is an essential "product" missing in the growing medium and the microorganism is able to synthesize said "product" then the biosynthesis pathway for said "product" which could be part of a metabolic pathway is an essential pathway for viability. However, if said "product" is comprised in the growing medium, then biosynthesis of said "product" can be redundant and thus the biosynthesis pathway for said "product" is not anymore essential for viability.

Due to this inaccuracy the true scope of the claim(s) is not clear and can thus not be searched.

Even if one would consider the claim clear, it would still not be in accordance with the requirements of the PCT since, due to the above mentioned breadth (ANY microorganism, ANY metabolic pathway) it would embrace too many possibilities not being substantially supported by the description. The same applies to claims 2 and 3.

As a consequence, the search has been limited to the specific example disclosed in the description namely the attenuation of Mycobacterium through the inhibition of a kinase in particular the pKnG kinase.

The applicant's attention is drawn to the fact that claims, or parts of claims, relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/GB2004/001272

Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☒ Claims Nos.: 1-3
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
see FURTHER INFORMATION sheet PCT/ISA/210
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this International application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB2004/001272

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 03074728	A	12-09-2003	WO 03074728 A2	12-09-2003
WO 03084947	A	16-10-2003	WO 03084947 A1	16-10-2003